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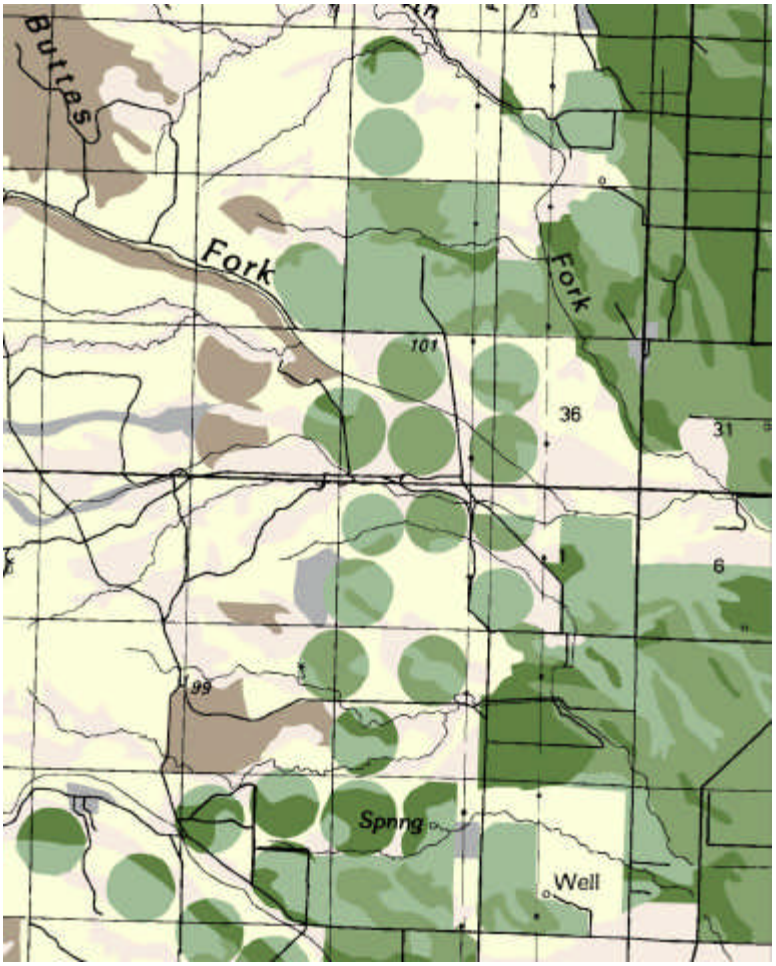
A Guide To
THE FARMLAND MAPPING AND MONITORING PROGRAM



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Cover illustration:
A section of the Important Farmland Map for Glenn County, showing pivot irrigation systems, dryland farming and grazing land on the Fruto Quadrangle. Many of the land use patterns shown here reflect the varying soil units underlying irrigated fields.

A Guide to
THE FARMLAND MAPPING AND MONITORING PROGRAM

PART I. GOALS AND OBJECTIVES

The goal of the Farmland Mapping and Monitoring Program (FMMP) is to provide data to decision makers for use in planning for the present and future use of California's agricultural land resources. To meet this goal, FMMP's objective is to provide maps and statistical data to the public, academia, and local, state, and federal governments to assist them in making informed decisions for the best utilization of California's farmland.

The FMMP was established in 1982 in response to what was by then a critical need for data on the nature, location, and extent of farmland, grazing land, and urban built-up areas in the State. Government Code §65570 mandates FMMP to biennially report to the Legislature on the conversion of farmland and grazing land, and to provide maps and data to local government and the public. The FMMP was also directed to prepare and maintain an automated map and data base system to record and report changes in the use of agricultural lands.

It was the intent of the Legislature and a broad coalition of building, business, government, and conservation interests that FMMP be non-regulatory, and provide a consistent and impartial analysis of agricultural land use and change in California. With this in mind, FMMP provides basic data from which observations and analyses can be made in the land use planning process. The FMMP's legislative authority and mandate are detailed in Appendix A.

PART II. PROGRAM BACKGROUND

The FMMP was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture, Soil Conservation Service (USDA-SCS). The intent of the USDA-SCS was to produce agricultural resource maps based on soil quality and land use across the nation. As part of this nationwide agricultural land use mapping effort, the USDA-SCS developed a series of definitions known as the Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability for agricultural production, which include both physical and chemical characteristics of soils and actual land use. Important Farmland Maps are derived from USDA-SCS soil survey maps using LIM criteria.

The USDA-SCS intended to complete a nationwide set of Important Farmland Maps. However, in 1980, a decreasing federal priority for completing the LIM program influenced the State of California to assist the USDA-SCS with completing its mapping in the state. State efforts at that time were directed at providing financial assistance to the federal government to expedite completion of draft Important Farmland Maps for California. The FMMP was created within the Department of Conservation to carry on the mapping activity on a continuing basis, and with a greater level of detail.

A brief look at the legislative record highlights important events and changes in the history and direction of FMMP.

> **ASSEMBLY BILL 966 (Lehman), Chapter 13, Statutes of 1982**, established FMMP to map, monitor, and report on important farmland, grazing land, and urban areas in 40 counties and to prepare and maintain an automated data base.
>
> **SENATE BILL 946 (Vuich), Chapter 1342, Statutes of 1985**, authorized use of an interim mapping inventory in counties lacking modern soil surveys, and authorized addition and mapping of new counties as modern soil surveys are completed.
>
> **ASSEMBLY BILL 3719 (Costa), Chapter 1053, Statutes of 1986**, shifted FMMP from an annual to a biennial update cycle.
>
> **SENATE BILL 642 (Garamendi), Chapter 1308, Statutes of 1987**, incorporated the Farmland Mapping Account with that of the Soil Conservation Program into a common fund as part of the State's Soil Conservation Fund.

Map updating was shifted to a two-year, or biennial, update cycle in 1986. This allowed map updating to begin in the first year of the cycle; with computer processing, data analysis, and report generation occurring in the second year. Publication of new USDA-SCS Soil Surveys has allowed for the addition of new counties and portions of counties to FMMP inventory area.

PART III. MAPPING CATEGORIES

The FMMP compiles two kinds of farmland maps: Important Farmland Maps for those areas that have modern soil surveys, and Interim Farmland Maps for those areas lacking modern soil survey information and for which there is expressed local concern on the status of farmland. A more complete set of technical definitions of the LIM categories, as modified for use in California, can be found in Appendix B.

Important Farmland Map Categories

Important Farmland Maps for California are compiled from USDA-SCS Soil Surveys and current land use information using eight mapping categories generally explained below. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into the surrounding map classifications.

PRIME FARMLAND (P)
Land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

FARMLAND OF STATEWIDE IMPORTANCE (S)
Land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

UNIQUE FARMLAND (U)
Lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the two update cycles prior to the mapping date.

FARMLAND OF LOCAL IMPORTANCE (L)
Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. See also Appendix C for each county's definition of Farmland of Local Importance.

GRAZING LAND (G)
Land on which the existing vegetation is suited to the grazing of livestock. This category is used only in California and was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

URBAN AND BUILT-UP LAND (D)
Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel.

OTHER LAND (X)
Land which does not meet the criteria of any other category.

WATER (W)
Water areas with an extent of at least 40 acres.

Interim Farmland Map Categories

Interim Farmland Maps are prepared for specific agricultural counties lacking modern soil surveys. The use of an interim mapping methodology provides a bench mark, or point in time, by which agricultural land use and urbanization can be tracked.

The farmland categories used in these maps are not dependent on modern soil survey information; two categories of Interim Farmland are mapped in lieu of the four LIM categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The two Interim Farmland categories are explained below.

IRRIGATED FARMLAND (I)
Cropped land with a developed irrigation water supply that is dependable and of adequate quality. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

NON-IRRIGATED FARMLAND (N)
Land on which agricultural commodities are produced on a continuing or cyclic basis utilizing stored soil moisture.

The categories of Irrigated Farmland and Non-Irrigated Farmland are designed to be easily upgraded using LIM criteria as the USDA-SCS completes modern soil survey mapping and the technical soil information becomes available.

The Interim Farmland Maps also utilize the categories of Grazing Land, Urban and Built-up Land, Other Land, and Water as defined under the section on Important Farmland Map Categories.

Land Committed To Nonagricultural Use

This category is used only in California and was developed in cooperation with local government planning departments and county boards of supervisors during the public workshop phase of FMMP's development in 1982. Information on Land Committed to Nonagricultural Use is available as an overlay to the standard farmland information.

LAND COMMITTED TO NONAGRICULTURAL USE
Existing farmland, grazing land, and vacant areas which have a permanent commitment for development.

Examples of Land Committed to Nonagricultural Use would include an area undergoing sanitary sewer installation or for which bonds or assessments have been issued for public utilities. Land Committed to Nonagricultural Use represents a planning area designated for future nonagricultural development that is not reversible by a simple majority vote by a city council or board of supervisors. Cities and counties furnish information on Land Committed to Nonagricultural Use on a voluntary basis.

The FMMP staff work with cities and counties to compile this information if they lack the resources to identify the qualifying areas. A complete definition and further explanation of Land Committed to Nonagricultural Use is contained in Appendix B.

PART IV. MAPPING PROCEDURES AND PRODUCTS

The FMMP uses a process which integrates public review, field mapping, air photo interpretation, and computer analysis. This system makes it possible for a relatively small staff to map, monitor, and report on statewide land use conversion information.

Use of a geographic information system (GIS) enables reporting by category on the amount of land converted to or from agricultural use. The GIS also aids with cartographic revision and reproduction of farmland maps.

The FMMP produces two standard scales of farmland maps:

> **1:100,000 COUNTY MAPS** (1 inch on the map represents approximately 1.6 miles on the ground). These maps delineate Important Farmland or Interim Farmland map categories and geographic information on a county-wide basis.
>
> **1:24,000 OVERLAYS** (1 inch on the map represents approximately 2,000 feet on the ground). These maps show the same information as produced on the 1:100,000 series maps, but in greater detail, and are designed to be used with standard U.S. Geological Survey (USGS) 7-½ minute topographic quadrangle maps.

The county maps consist of computer-generated farmland information printed on a USGS planimetric base map with cultural and hydrologic detail. This series is designed to show most counties on one sheet. Blueprint reproduction is used due to its economy. Blueprint copies of the entire county map series are kept on hand for ready access and distribution.

The 1:24,000 overlays are computer-generated maps of farmland information on translucent paper and are generated for a nominal fee upon request. Regional maps and data on digital media are also available.

The process of updating and producing Important and Interim Farmland Maps is described below.

Air Photo Interpretation and Field Mapping

The mapping process is begun by producing a set of 1:24,000 field sheets from the most recent inventory using the overlays described above. The maps are compared to new air photos in order to discern any land use changes that have occurred in the two years between updates. Parcels found to be questionable and areas lacking photographic coverage are then field verified.

Air photos are obtained from other governmental agencies or the private sector. The cost, extent of photo coverage, and photo format dictate the types of air photos used. When possible, color infrared photography is used due to its superior ability to depict irrigated agriculture.

Common examples of land use change include urban expansion, irrigated agriculture development, or cessation of farming activity. A notation system is used on the maps to describe each change and to highlight areas where more change could be expected based on public comment or other sources. Field sheets and air photos used in the update process are archived for future reference. The air photo and field mapping process takes approximately 15 to 18 months.

GIS Mapping and Data Analysis

Important and Interim Farmland Maps are incorporated into and maintained on a GIS. This system places maps in a geographic projection and links them to a database. After field mapping is complete, land use changes are incorporated into the GIS by updating the prior version of the map. Quality control is maintained through both manual verification of the changes and computer verification of the new linework. The database is then updated to produce new acreage totals and conversion data.

Land use conversion data is determined on a category-to-category basis: 8 categories and 56 conversion combinations are reported. This data is checked for accuracy before the final conversion report is produced. After the land use conversion data is reviewed and verified, the new 1:100,000 and 1:24,000 series maps are generated.

Public Review and Biennial Updating

Public review periods are important aspects of both initial map compilation and biennial map updating. During these 90-day public review periods, map reviewers (see list below) are provided with copies of 1:100,000 maps. These maps are reviewed for accuracy of land use classification and delineation. In addition, city and county planning departments have the option to provide information on Land Committed to Nonagricultural Use as additional map and statistical data. Any comments received during public review periods are verified by FMMP staff and incorporated into subsequent versions of the maps. The FMMP actively seeks and welcomes public review comments since they increase the accuracy of the maps as well as provide information on local uses for the maps.

Map Reviewers List

Board of Supervisors
County Planning Department
Incorporated City Planning Departments
Agricultural Commissioner's Office
Resource Conservation District(s)
Farm Bureau
Cattlemen's Association
Agricultural Producers-Landowners
Business-Real Estate Community
Development-Building Industry
Public Interest
Environmental Groups
Community Members
U. C. Cooperative Extension, Farm Advisor

At the start of each update cycle, FMMP staff contact the county and incorporated city planning departments, agricultural commissioners, U.C. Cooperative Extension staff, USDA-SCS District Conservationists, and other interested parties for recommended changes to the maps.

The FMMP provides 1:100,000 Important Farmland Maps to reviewers for highlighting areas of land use change. Upon request, one set of the 1:24,000 detailed overlay maps are provided to each county. The FMMP staff use the information received from counties to assist in identifying areas which must be reclassified, updated, or delineated as Land Committed to Nonagricultural Use during the next mapping cycle.

Biennial Report

Government Code §65570 requires FMMP to collect and report land use acreage and conversion data by June 30 of each even-numbered year. The FMMP, therefore, publishes a biennial Farmland Conversion Report which details county land use acreage by category, and the types of conversion which have occurred during each two year reporting cycle. The report also contains regional and projectwide acreage and conversion summaries as well as an objective written summary of land use activity observed through the inventory period.

The initial mapping year for many Important Farmland Maps is 1984. The base year for areas introduced to the FMMP inventory since 1984 is the even-numbered year closest to their compiliation date. For its base year reporting, a new FMMP area will have only a by-category acreage summary. Conversion statistics for new FMMP inventory areas become available two years after the initial base year reporting, upon publication of the subsequent Farmland Conversion Report.

Appendix A: GOVERNMENT CODE

§65570. **Open-space subventions; information and report on land converted to or from agricultural use; important farmland series maps; purpose**

(a) The Director of Conservation may establish, after notice and hearing, rules and regulations, and require reports from local officials and may employ, borrow, or contract for such staff or other forms of assistance as are reasonably necessary to carry out this section, Chapter 3 (commencing with Section 16140) of Part 1 of Division 4 of Title 2, and Section 612 of the Public Resources Code. In carrying out his or her duties under those sections, it is the intention of the Legislature that the Director shall consult with the Director of Food and Agriculture and the Director of Planning and Research.

(b) Commencing July 1, 1986, and continuing biennially thereafter, the Department of Conservation shall collect or acquire information on the amount of land converted to or from agricultural use using 1984 baseline information as updated pursuant to this section for every county for which Important Farmland Series maps exist. On or before June 30, 1988, and continuing biennially thereafter, the department shall report to the Legislature on the data collected pursuant to this section. In reporting, the department shall specify, by category of agricultural land, the amount of land converted to, or from, agricultural use, by county and on a statewide basis. The department shall also report on the nonagricultural uses to which these agricultural lands were converted or committed.

For the purpose of this section, the following definitions apply unless otherwise specified:

(1) "Important Farmland Series maps" means those maps compiled by the United States Soil Conservation Service and updated and modified by the Department of Conservation.

(2) "Interim Farmland maps" means those maps prepared by the Department of Conservation for areas that do not have the current soil survey information needed to compile Important Farmland Series maps. The Interim Farmland maps shall indicate areas of irrigated agriculture, dry-farmed agriculture, grazing land, urban and built-up lands, and any areas committed to urban or other nonagricultural uses.

(3) "Category of agricultural land" means prime farmland, farmland of statewide importance, unique farmland, and farmland of local importance, as defined pursuant to United States Department of Agriculture land inventory and monitoring criteria, as modified for California, and grazing land. "Grazing land" means land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock.

(4) "Amount of land converted to agricultural use" means those lands which were brought into agricultural use or reestablished in agricultural use and were not shown as agricultural land on Important Farmland Series maps maintained by the Department of Conservation in the most recent biennial report.

(5) "Amount of land converted from agricultural use" means those lands which were permanently converted or committed to urban or other nonagricultural uses and were shown as agricultural land on Important Farmland Series maps maintained by the Department of Conservation in the most recent biennial report.

(c) Beginning August 1, 1986, and continuing biennially thereafter, the Department of Conservation shall update and send counties copies of current Important Farmland Series maps. Counties may review the maps and notify the Department within 90 days of any changes in agricultural land pursuant to subdivision (b) that occurred during the previous fiscal year, and note and request correction of any discrepancies or errors in the classification of agricultural lands on the maps. The Department shall make those corrections requested by counties. The Department shall provide staff assistance, as available, to collect or acquire information on the amount of land converted to, or from, agricultural use for those counties for which Important Farmland Series maps exist.

(d) The Department of Conservation may also acquire any supplemental information which becomes available from new soil surveys and establish comparable baseline data for counties not included in the 1984 baseline, and shall report on the data pursuant to this section. The Department of Conservation may prepare Interim Farmland maps to supplement the Important Farmland Series maps.

(e) The Legislature finds that the purpose of the Important Farmland Series maps and the Interim Farmland maps is not to consider the economic viability of agricultural lands or their current designation in the general plan. The purpose of the maps is limited to the preparation of an inventory of agricultural lands, as defined in this chapter, as well as land already committed to future urban or other nonagricultural purposes.

(Amended by Stats. 1983, c. 924, § 1; Stats. 1985, c. 1342, § 3; Stats. 1986, c. 1053, § 1.)

Appendix B: MAPPING CATEGORIES AND SOIL TAXONOMY TERMS

The following definitions are used in preparing the Important Farmland Maps and the Farmland Conversion Report. Soil-specific terms, such as xeric, ustic, aridic, etc., are defined at the end of this appendix.

The definitions for Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Urban Built-up Land were developed by the USDA-SCS as part of their nationwide Land Inventory and Monitoring (LIM) system.

These LIM definitions have been modified for use in California. The most significant modification is that Prime Farmland and Farmland of Statewide Importance must be irrigated. Farmland of Local Importance has been identified by local advisory committees and vary from county to county, as intended by the LIM. Mapping of Grazing Land as part of an Important Farmland Map is unique to California. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres will be incorporated into the surrounding map classifications.

Prime Farmland

Prime Farmland is land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Prime Farmland must meet all the following criteria:

a. Water

The soils have xeric, ustic, or aridic (torric) moisture regimes in which the available water capacity is at least 4.0 inches (10 cm) per 40 to 60 inches (1.02 to 1.52 meters) of soil, and a developed irrigation water supply that is dependable and of adequate quality. A dependable water supply is one which is available for the production of the commonly grown crops in 8 out of 10 years; and

b. Soil Temperature Range

The soils have a temperature regime that is frigid, mesic, thermic, or hyperthermic (pergelic and cryic regimes are excluded). These are soils that, at a depth of 20 inches (50.8 cm), have a mean annual temperature higher than 32^{o}F (0^{o} C). In addition, the mean summer temperature at this depth in soils with an O horizon is higher than 47^{o} F (8^{o} C); in soils that have no O horizon, the mean summer temperature is higher than 59^{o} F (15^{o} C); and

c. Acid-Alkali Balance

The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches (1.02 meters); and

d. Water Table

The soils have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and

e. Soil Sodium Content

The soils can be managed so that, in all horizons within a depth of 40 inches (1.02 meters), during part of each year the conductivity of the saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage is less than 15; and

f. Flooding

Flooding of the soil (uncontrolled runoff from natural precipitation) during the growing season occurs infrequently, taking place less often than once every two years; and

g. Erodibility

The product of K (erodibility factor) multiplied by the percent of slope is less than 2.0; and

h. Permeability

The soils have a permeability rate of at least 0.06 inch (0.15 cm) per hour in the upper 20 inches (50.8 cm) and the mean annual soil temperature at a depth of 20 inches (50.8 cm) is less than 59^{o} F (15^{o} C); the permeability rate is not a limiting factor if the mean annual soil temperature is 59^{o} F (15^{o} C) or higher; and

i. Rock Fragment Content

Less than 10 percent of the upper 6 inches (15.24 cm) in these soils consists of rock fragments coarser than 3 inches (7.62 cm); and

j. Rooting depth

The soils have a minimum rooting depth of 40 inches (1.02 meters).

Farmland of Statewide Importance

Farmland of Statewide Importance is land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Farmland of Statewide Importance must meet all the following criteria:

a. Water

The soils have xeric, ustic, or aridic (torric) moisture regimes in which the available water capacity is at least 3.5 inches (8.89 cm) within a depth of 60 inches (1.52 meters) of soil; or within the root zone if it is less than 60 inches (1.52 meters) deep. They have a developed irrigation supply that is dependable and of adequate quality. A dependable water supply is one which is available for the production of the commonly grown crops in 8 out of 10 years; and

b. Soil Temperature Range

The soils have a temperature regime that is frigid, mesic, thermic, or hyperthermic (pergelic and cryic regimes are excluded). These are soils that, at a depth of 20 inches (50.8 cm), have a mean annual temperature higher than 32° F (0° C). In addition, the mean summer temperature at this depth in soils with an O horizon is higher than 47° F (8° C); in soils that have no O horizon, the mean summer temperature is higher than 59° F (15° C); and

c. Acid-Alkali Balance

The soils have a pH between 4.5 and 9.0 in all horizons within a depth of 40 inches (1.02 meters) or in the root zone if the root zone is less than 40 inches (1.02 meters) deep; and

d. Water Table

The soils have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and

e. Soil Sodium Content

The soils can be managed so that, in all horizons within a depth of 40 inches (1.02 meters), or in the root zone if the root zone is less than 40 inches (1.02 meters) deep, during part of each year the conductivity of the saturation extract is less than 16 mmhos/cm and the exchangeable sodium percentage is less than 25; and

f. Flooding

Flooding of the soil (uncontrolled runoff from natural precipitation) during the growing season occurs infrequently, taking place less often than once every two years; and

g. Erodibility

The product of K (erodibility factor) multiplied by the percent of slope is less than 3.0; and

h. Rock Fragment Content

Less than 10 percent of the upper 6 inches (15.24 cm) in these soils consists of rock fragments coarser than 3 inches (7.62 cm).

Farmland of Statewide Importance does not have any restrictions regarding permeability or rooting depth.

Unique Farmland

Unique Farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that has been used for the production of specific high economic value crops at some time during the two update cycles prior to the mapping date. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Characteristically Unique Farmland:

a. Is used for specific high value crops; and

b. Has a moisture supply that is adequate for the specific crop; the supply is from stored moisture, precipitation or a developed irrigation system; and

c. Combines favorable factors of soil quality, growing season, temperature, humidity, air drainage, elevation, exposure, or other conditions, such as nearness to market, that favor growth of a specific food or fiber crop; and

d. Excludes abandoned orchards or vineyards, dryland grains, and extremely low yielding crops, such as irrigated pasture, as determined in consultation with the County Cooperative Extension Director and Agricultural Commissioner.

High-value crops are listed in California Agriculture, an annual report of the California Department of Food and Agriculture. In order for land to be classified Unique Farmland, the crop grown on the land must have qualified for the list at some time during the two update cycles prior to the mapping date.

Farmland of Local Importance

Farmland of Local Importance is either currently producing crops, has the capability of production, or is used for the production of confined livestock. Farmland of Local Importance is land other than Prime Farmland, Farmland of Statewide Importance or Unique Farmland. This land may be important to the local economy due to its productivity or value. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use. In a few counties the local advisory committee has elected to additionally define areas of Local Potential (LP) farmland. This land includes soils which qualify for Prime Farmland or Farmland of Statewide Importance, but generally are not cultivated or irrigated. For reporting purposes, Local Potential and Farmland of Local Importance are combined in the acreage tables, but are shown separately on the Important Farmland Map.

Farmland of Local Importance is initially identified by a local advisory committee (LAC) convened in each county by FMMP in cooperation with the USDA-SCS and the county board of supervisors. LAC membership is very similar to the map reviewers list on page 6 of this document. Authority to recommend changes to the category of Farmland of Local Importance rests with the board of supervisors in each county. The FMMP presents each draft map to the board of supervisors for their review. After the presentation of this map, the board of supervisors has a 90-day review period in which to request any needed modifications. An extension may be granted upon request. The board of supervisors may then approve or disapprove the Farmland of Local Importance category. The FMMP will accept the recommendation of the board of supervisors if it is consistent with the general program guidelines.

If no action is initiated by the county to identify or adopt a Farmland of Local Importance definition within a year of contact by FMMP, the county will be deemed to have no adopted definition for Farmland of Local Importance.

Any revision to the initial board of supervisors' action on Farmland of Local Importance will require 30-day written notice to FMMP and members of the LAC. This process may require reconvening of the LAC.
County definitions of Farmland of Local Importance are contained in Appendix C.

Grazing Land

Grazing Land is defined in Government Code §65570(b)(3) as:

> "...land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock."

The minimum mapping unit for Grazing Land is 40 acres.

Grazing Land does not include land previously designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance, and heavily brushed, timbered, excessively steep, or rocky lands which restrict the access and movement of livestock.

The FMMP convenes a grazing land advisory committee in each project county to help identify grazing lands. The committees consist of members of the local livestock ranching community, livestock ranching organizations, and the U. C. Cooperative Extension livestock advisor. The FMMP works with the president of the local Cattlemen's Association and the U.C. Cooperative Extension livestock advisor in selecting members of these committees.

Urban and Built-up Land

Urban and Built-up Land is used for residential, industrial, commercial, construction, institutional, public administrative purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as a part of Urban and Built-up Land if they are a part of the surrounding urban areas.

Units of land smaller than 10 acres will be incorporated into the surrounding map classifications. The building density for residential use must be at least 1 structure per 1.5 acres (or approximately 6 structures per 10 acres). Urban and Built-up Land must contain man-made structures or buildings under construction, and the infrastructure required for development (e.g., paved roads, sewers, water, electricity, drainage, or flood control facilities) that are specifically designed to serve that land. Parking lots, storage and distribution facilities, and industrial uses such as large packing operations for agricultural produce will generally be mapped as Urban and Built-up Land even though they may be associated with agriculture.

Urban and Built-up Land does not include strip mines, borrow pits, gravel pits, farmsteads, ranch headquarters, commercial feedlots, greenhouses, poultry facilities, or road systems for freeway interchanges outside of areas classified as Urban and Built-up Land areas.

Within areas classified as Urban and Built-up Land, vacant and nonagricultural land which is surrounded on all sides by urban development and is less than 40 acres in size will be mapped as Urban and Built-up. Vacant and nonagricultural land larger than 40 acres in size will be mapped as Other Land.

Other Land

Other Land is that which is not included in any of the other mapping categories. The following types of land are generally included:

a. rural development which has a building density of less than 1 structure per 1.5 acres, but with at least 1 structure per 10 acres;

b. brush, timber, wetlands, and other lands not suitable for livestock grazing;

c. government lands not available for agricultural use;

d. road systems for freeway interchanges outside of Urban and Built-up Land areas;

e. vacant and nonagricultural land larger than 40 acres in size and surrounded on all sides by urban development;

f. confined livestock, poultry, or aquaculture facilities, unless accounted for by the county's Farmland of Local Importance definition;

g. strip mines, borrow pits, gravel pits, and ranch headquarters, or water bodies smaller than 40 acres;

h. a variety of other rural land uses.

Land Committed to Nonagricultural Use

Land Committed to Nonagricultural Use is land that is permanently committed by local elected officials to nonagricultural development by virtue of decisions which cannot be reversed simply by a majority vote of a city council or county board of supervisors.

County boards of supervisors and city councils will have the final authority to designate lands in this category. The FMMP will work with city and county planning staffs to obtain this information. Land Committed to Nonagricultural Use will be shown on an overlay to Important and Interim Farmland Maps. The current land use will be indicated on the base map, with the overlay indicating the areas that are Committed to Nonagricultural Use.

Land Committed to Nonagricultural Use must be designated in an adopted, local general plan for future nonagricultural development. The resulting development must meet the requirements of Urban and Built-up Land or the rural development density criteria of Other Land.

Land Committed to Nonagricultural Use must also meet the requirements of either (a) or (b) below:

a. It must have received one of the following final discretionary approvals:

    1. Tentative subdivision map (approved per the Subdivision Map Act);

    2. Tentative or final parcel map (approved per the Subdivision Map Act);

    3. Recorded development agreement (per Government Code §65864);

4. Other decisions by a local government which are analogous to items #1-3 above and which exhibit an element of permanence. Zoning by itself does not qualify as a permanent commitment.

Or

b. It must be the subject of one of the final fiscal commitments to finance the capital improvements specifically required for future development of the land in question as shown below:

1. Recorded Resolution of Intent to form a district and levy an assessment;

2. Payment of assessment;

3. Sale of bonds;

4. Binding contract, secured by bonds, guaranteeing installation of infrastructure;

5. Other fiscal commitments which are analogous to items #1-4 above and exhibit an element of permanence.

Land Committed to Nonagricultural Use is mapped when the respective local government notifies FMMP that the land meets these criteria and submits 1:24,000 maps identifying the area and showing its boundaries. The information provided is subject to verification by FMMP. In some cases, the local government must also provide FMMP with documentation of the permanent commitment.

Soil Taxonomy Terms

Soils are classified based on their physical and chemical characteristics using systems outlined by the U.S. Department of Agriculture's *Soil Survey Manual* and the National Cooperative Soil Survey's *Soil Taxonomy*.

Soil **horizons** are layers of soils approximately parallel to the land surface and differing from adjacent, genetically related layers in physical, chemical, and biological properties. Examples of such properties include color, texture, acid-alkali balance, and organic matter content.

Soil moisture regimes are used in defining soil classes at various levels in the soil taxonomy system:

Xeric - typically found in Mediterranean-type climates where winters are moist and cool, and summers are warm and dry.

Ustic - involves the concept of limited, but effective, soil moisture. Though implying dryness, moisture is available at a time when other conditions are suitable for plant growth.

Aridic (torric) - soils with this moisture regime are generally found in arid climates with hot and dry summers.

Soil temperature regimes are used in defining soil classes at a depth of 19.7 inches (50 cm or to the depth of rock if it is shallower) which is analogous to plant rooting depth.

Frigid - mean annual soil temperature is less than 47^{o} F (8^{o} C) and the difference between mean winter and mean summer temperature is more than 9^{o} F (5^{o} C).

Mesic - mean annual soil temperature is between 47^{o} F (8^{o} C) and 59^{o} F (15^{o} C) and the difference between mean summer and mean winter soil temperature is more than 9^{o} F (5^{o} C).

Thermic - mean annual soil temperature is between 59^{o} F (15^{o} C) and 72^{o} F (22^{o} C), and the difference between mean summer and mean winter soil temperature is more than 9^{o} F (5^{o} C).

Hyperthermic - mean annual soil temperature is greater than 72^{o} F (22^{o} C) and the difference between mean winter and mean summer temperature is more than 9^{o} F (5^{o} C).

Pergelic - mean annual soil temperature is lower than 32^{o} F (0^{o} C). Permafrost is present.

Cryic - mean annual temperature is higher than 32^{o} F (0^{o} C) but lower than 47^{o} F (8^{o} C) and the difference between mean summer and mean winter soil temperature is more than 9^{o} F (5^{o} C).

Soil salinity may be expressed in terms of the electrical conductivity of the water in contact with the soil.

mmhos/cm - a unit of electrical conductivity, which is a measure of the salinity of soil.

Soil acid-alkali balance is expressed in terms of pH.

pH - a numerical measure of acidity or hydrogen ion activity. Neutral is pH 7.0. All pH values below 7.0 are acid, and all above 7.0 are alkaline.

Appendix C: FARMLAND OF LOCAL IMPORTANCE DEFINITIONS

Farmland of Local Importance is land of importance to the local economy, as defined by each county's local advisory committee and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or has the capability of production; but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Authority to adopt or to recommend changes to the category of Farmland of Local Importance rests with the Board of Supervisors in each county.

ALAMEDA

The Board of Supervisors determined that there will be no Farmland of Local Importance for Alameda County.

AMADOR

Land that is currently in agricultural production and that is providing an economic return equal to that from the prime soil types.

CONTRA COSTA

The lands within the Tassajara area, extending eastward to the county boundary and bordered on the north by the Black Hills, the Deer, Lone Tree and Briones Valleys, the Antioch area, and the Delta. These lands are typically used for livestock grazing. They are capable of producing dryland grain on a two-year summer fallow or longer rotation with volunteer hay and pasture. The farmlands in this category are included in the U.S. Soil Conservation Service's Land Capability Classes I, II, III, and IV, and lack some irrigation water.

EL DORADO

Lands that do not qualify for the Prime, Statewide, or Unique designation but are considered Existing Agricultural Lands, or Potential Agricultural Lands, in the Agricultural Land Element of the County General Plan. Timberlands are excluded.

FRESNO

All farmable lands within Fresno County that do not meet the definitions of Prime, Statewide, or Unique.

GLENN

Local Importance (L): All lands not qualifying for Prime, Statewide, or Unique that are cropped on a continuing or cyclic basis (irrigation is not a consideration). All cropable land within Glenn County water district boundaries not qualifying for Prime, Statewide, or Unique.

Local Potential (LP): All lands having Prime and Statewide soil mapping units which are not irrigated, regardless of cropping history or irrigation water availability.

IMPERIAL

Unirrigated and uncultivated lands with Prime and Statewide soils.

KERN

The Board of Supervisors determined that there will be no Farmland of Local Importance for Kern County.

KINGS

Land that supports the following commercial agricultural activities: dairies, confined livestock, and poultry operations.

LOS ANGELES

Producing lands that would meet the standard criteria for Prime or Statewide but are not irrigated.

MADERA

Lands that are presently under cultivation for small grain crops, but are not irrigated. Also lands that are currently irrigated pasture, but have the potential to be cultivated for row/field crop use.

MARIN

Land which is not irrigated, but is cultivated; or has the potential for cultivation.

MARIPOSA

The Board of Supervisors determined that there will be no Farmland of Local Importance for Mariposa County.

MERCED

Farmlands that have physical characteristics that would qualify for Prime or Statewide except for the lack of irrigation water. Also, farmlands that produce crops that are not listed under Unique but are important to the economy of the county or city.

MODOC

Irrigated and dry cropland classified as Class III and Class IV irrigated land if water is or becomes available.

MONTEREY

The Board of Supervisors determined that there will be no Farmland of Local Importance for Monterey County.

NAPA

These farmlands include areas of soils that meet all the characteristics of Prime Farmland or of additional Farmland of Statewide Importance with the exception of irrigation. These farmlands include dryland grains, haylands, and dryland pasture.

NEVADA

Farmlands that have physical characteristics that would qualify for Prime or Statewide except for the lack of irrigation water. Farmlands that produce crops that are not listed under Unique Lands but are important to the economy of the county are: Christmas trees, Sudan grass, Meadow hay, chestnuts, poultry houses and feedlots, improved dryland pasture (not rangeland), and irrigated pasture (it is under Statewide or Prime if soils are listed as such, otherwise as Local).

Also, lands that are legislated to be used only for agricultural (farmland) purposes, such as Williamson Act land in western Nevada County.

ORANGE

The Board of Supervisors determined that there will be no Farmland of Local Importance for Orange County.

PLACER

Farmlands not covered by the categories of Prime, Statewide, or Unique. They include lands zoned for agriculture by County Ordinance and the California Land Conservation Act as well as dry farmed lands, irrigated pasture lands, and other agricultural lands of significant economic importance to the County and include lands that have a potential for irrigation from Placer County water supplies.

RIVERSIDE

Soils that would be classified as Prime and Statewide but lack available irrigation water. Lands planted to dryland crops of barley, oats, and wheat.
Lands producing major crops for Riverside County but that are not listed as Unique crops. These crops are identified as returning one million or more dollars on the Riverside County Agriculture Crop Report. Crops identified are permanent pasture (irrigated), summer squash, okra, eggplant, radishes, and watermelons.

Dairylands, including corrals, pasture, milking facilities, hay and manure storage areas if accompanied with permanent pasture or hayland of 10 acres or more.

Lands identified by city or county ordinance as Agricultural Zones or Contracts, which includes Riverside City "Proposition R" lands. Lands planted to jojoba which are under cultivation and are of producing age.

SACRAMENTO

Lands which do not qualify as Prime, Statewide, or Unique designation but are currently irrigated crops or pasture or nonirrigated crops; lands that would be Prime or Statewide designation and have been improved for irrigation but are now idle; and lands which currently support confined livestock, poultry operations, and aquaculture.

SAN BENITO

Land cultivated as dry cropland. Usual crops are wheat, barley, oats, safflower, and grain hay. Also, orchards affected by boron within the area specified in County Resolution Number 84-3.

SAN BERNARDINO

Farmlands which include areas of soils that meet all the characteristics of Prime, Statewide, or Unique and which are not irrigated.

Farmlands not covered by above categories but are of high economic importance to the community. These farmlands include dryland grains of wheat, barley, oats, and dryland pasture.

SAN DIEGO

Land that meets all the characteristics of Prime and Statewide, with the exception of irrigation.

Farmlands not covered by the above categories but are of significant economic importance to the county. They have a history of good production for locally adapted crops. The soils are grouped in types that are suited for truck crops (such as tomatoes, strawberries, cucumbers, potatoes, celery, squash, romaine lettuce, and cauliflower) and soils suited for orchard crops (avocados and citrus).

SAN JOAQUIN

All farmable land within San Joaquin County not meeting the definitions of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Grazing Land. This includes land that is or has been used for irrigated pasture, dryland farming, confined livestock or dairy facilities, aquaculture or poultry facilities. It also includes soils previously designated by soil characteristics as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland that has since become idle.

SAN LUIS OBISPO

Local Importance (L): areas of soils that meet all the characteristics of Prime or Statewide, with the exception of irrigation. Additional farmlands include dryland field crops of wheat, barley, oats, and safflower.

Local Potential (LP): lands having the potential for farmland, which have Prime or Statewide characteristics and are not cultivated.

SAN MATEO

Lands other than Prime, Statewide, or Unique that produce the following crops: oats, Christmas trees, pumpkins, dryland pasture, other grains, and haylands. These lands are not irrigated.

SANTA BARBARA

All dryland farming areas and permanent pasture (if the soils were not eligible for either Prime or Statewide). Dryland farming includes various cereal grains (predominantly wheat, barley, and oats), sudan, and many varieties of beans. (Although beans can be high value crops the production areas are usually rotated with grain, hence the decision to include them under Local rather than Unique. Also, bean crop yields are highly influenced by climate, so there can be a wide variance in cash value.)

SANTA CLARA

Small orchards and vineyards primarily in the foothill areas. Also land cultivated as dry cropland for grains and hay.

SANTA CRUZ

Soils used for Christmas tree farms and nurseries, and that do not meet the definition for Prime, Statewide, or Unique.

SHASTA

Dryland grain producing lands. Also included are farmlands that are presently irrigated but do not meet the soil characteristics of Prime or Statewide. The majority of these farmlands are located within the Anderson-Cottonwood Irrigation District. These soils include Newton gravelly loam (8 to 15 percent slopes), Moda loam, seeped (0 to 3 percent slopes), Moda loam, shallow (0 to 5 percent slopes), and Hillgate loam.

SIERRA VALLEY

Plumas County: Lands designated as "agricultural preserve" in the 1984 Plumas County General Plan and rangelands with a carrying capacity of 8 acres/animal month, as well as irrigable lands.

Lassen and Sierra counties: Farmlands that include areas of soils that meet all the characteristics of Prime or Statewide and which are not irrigated. Also, all dry land wheat, barley, oats, hayland, and pasture.

SISKIYOU

Farmlands that include dryland or sub-irrigated hay and grain and improved pasture forage species. These dry farmed lands commonly have inclusions of uncultivated shallow, rocky, or steep soils.

Also included are farmlands presently irrigated but which do not meet the soil characteristics of Prime or Statewide.

SOLANO

The Board of Supervisors determined that there will be no Farmland of Local Importance for Solano County.

SONOMA

The hayland producing areas of the Santa Rosa Plains, Petaluma Valley, and Tubbs Island Naval Reservation. Additional areas also include those lands which are classified as having the capability for producing locally important crops such as grapes, corn, etc., but may not be planted at the present time.

Examples of these areas include the coastal lands from Fort Ross to Stewarts Point, areas surrounding Bloomfield, Two Rock, Chileno Valley, and areas of Sonoma Valley in the vicinity of Big Bend, Vineburg, and Schellville.

STANISLAUS

Farmlands growing dryland pasture, dryland small grains, and irrigated pasture.

SUTTER

The Board of Supervisors determined that there will be no Farmland of Local Importance for Sutter County.

TEHAMA

All lands which are not included in Prime, Statewide, or Unique and are cropped continuously or on a cyclic basis (irrigation is not a factor). Also, all lands included in the L category which have soil mapping units listed for Prime or Statewide and which are not irrigated.

TULARE

Lands that produce dryland grains (barley and wheat); lands that have physical characteristics that would qualify for Prime or Statewide Important farmlands except for the lack of irrigation water; and lands that currently support confined livestock, poultry, and/or aquaculture operations.

VENTURA

Soils that are listed as Prime or Statewide that are not irrigated, and soils growing dryland crops--beans, grain, dryland walnuts, or dryland apricots.

YOLO

Local Importance (L): cultivated farmland having soils which meet the criteria for Prime or Statewide, except that the land is not presently irrigated, and other nonirrigated farmland.

Local Potential (LP): Prime or Statewide soils which are presently not irrigated or cultivated.

YUBA

The Board of Supervisors determined that there will be no Farmland of Local Importance for Yuba County.